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Mathematics — First Year

BTEUP Diploma • 1st Semester (First Year — Common Curriculum) • Session 2026–27
Common Curriculum • 1st Semester • All 41 Engineering Branches

About this document: The first year of a BTEUP diploma runs on one common curriculum for 41 engineering branches, so this subject is the same whether you are in Computer Science, Mechanical, Civil or Electrical. The subject areas below are from the official 1st-year curriculum (folder2627, NEP-2020). Paper-wise codes, marks and L-P hours are **not** stated here because they are yet to be confirmed from the official 1st-year PDF — please confirm them with your own polytechnic.

What This Subject Aims To Do

To build the mathematical foundation every engineer needs — the algebra, calculus and matrices that later subjects (C programming logic, networks, data structures) all stand on.

Unit-Wise Complete Topic List

Algebra & Trigonometry

Topics: Algebraic expressions and equations; trigonometric ratios, identities and heights and distances.

In simple words: The everyday maths of engineering: solving equations and working with angles and triangles.

Calculus

Topics: Limits, differentiation and its applications; integration and its applications; definite integrals.

In simple words: How things change and accumulate — the maths behind rates, slopes, areas and volumes.

Matrices & Determinants

Topics: Types of matrices; operations on matrices; determinants; solving systems of linear equations.

In simple words: Organising numbers in tables and solving several equations at once — the same idea behind computer graphics and data handling.

Differential Equations

Topics: First-order differential equations and their simple applications.

In simple words: Equations that describe how things change over time — used everywhere from circuits to mechanics.

How This Helps You Later

If your maths is weak, building logic in C programming becomes difficult. Strong first-year maths makes 2nd-year subjects noticeably easier.

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Source: BTEUP 1st Year common curriculum (folder2627), NEP-2020 aligned — subject areas verified; paper-wise details to be confirmed from the official 1st-year PDF. Topic lists follow the official syllabus; short explanations are the author's own plain-English summaries, not syllabus text. Please confirm with your own polytechnic for any local changes.